

REMARKS:

The preceding claim amendments and the following remarks are submitted as a full and complete response to the Office Action issued on March 11, 2008. Claims 16 and 25 have been amended. Support for the amendments may be found, *inter alia*, in the original claims. No new matter has been added. Accordingly, claims 1-23 and 25-45 are pending.

An objection was made to claims 25-41 and 44 because claim 25's recitation of "the two-dimensional object illumination region" lacked antecedent basis. The term "two dimensional" has been deleted as the object illumination region refers to the illumination region which extends in the direction of an illumination axis of the illumination beam path and transversely thereto as defined earlier in claim 25. Applicants submit that this objection is now moot, and request that it be withdrawn.

Claims 16, 18, 21 and 22 were rejected under 35 U.S.C. §102(b) as being anticipated by Walton et al, US 6,294,321 B1. Claim 16, from which claims 17-23 depend, recites, and is directed to, a microscope. In contrast, Walton et al. discloses a system and a method for detecting a sample with a scanner instrument for scanning a sample using light scattering a reflection techniques (column 2 lines 51 to 54). However, Walton et al. does not disclose or mention the use of a microscope. Therefore Walton et al. does not anticipate claim 16 of the present invention.

Independent grounds for allowing claim 16 exist. Claim 16 recites "wherein the linear object illumination region is essentially limited to a direction of the illumination axis." In contrast, Walton discloses a cylindrical lens in the illumination axis, shown in Fig. 6, that is focused to a line narrow enough to spatially reject unwanted reflections from interfaces (column 6, line 62 – 63). By using the cylindrical lens, an illumination line at the object is produced that

extends perpendicular to the illumination axis. This is an inherent feature of a cylindrical lens. Thus, the line mentioned in Walton at al. extends perpendicularly to the image plane of Fig. 6.

Accordingly, Applicants submit that Walton fails to disclose each and every element of claims 16-23, and requests that the rejection of claims 16-23 be withdrawn.

Claims 25-27, 29, 32-33, 39-41 were rejected under 35 U.S.C. §102(b) as being anticipated by Voie et al. Claim 25, from which claims 26-41 and 44 depend, has been amended to recite “a rectilinear displacement movement.” In contrast, Voie discloses a rotation of the sample within sample chamber. A rotation of the sample changes the orientation of the sample with respect to the illumination axis or the detection direction but is not a displacement movement of the sample, much less a rectilinear displacement. The present invention claims a rectilinear displacement movement of the object (sample) in order to change the area of an object that is illuminated by the illumination beam path for imaging a different slice or plane of the object.

Accordingly, Applicants submit that Voie fails to disclose each and every element of claims 25-41 and 44, and requests that the rejection of claims 25-41 and 44 be withdrawn.

Claims 17 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Walton in view of Voie. Voie fails to cure the deficiencies of Walton with respect to claim 16, from which claims 17 and 23 depend, and thus Applicants request that the rejection of claims 17 and 23 be withdrawn.

Claims 19 and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Walton in view of Voie and further in view of Horikawa, U.S. Patent 4,893,008. Horikawa fails to cure the deficiencies of Walton and Voie with respect to claim 16, from which claims 19 and 20 depend, and thus Applicants request that the rejection of claims 19 and 20 be withdrawn.

Claim 28 was rejected under 35 U.S.C. §103(a) as being unpatentable over Voie in view of Horikawa. Horikawa fails to cure the deficiencies of Voie with respect to claim 25, from which claim 28 depends, and thus Applicants request that the rejection of claim 28 be withdrawn.

Claims 30 and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Voie in view of Horikawa and further in view of Lee, U.S. Pub. 2002/0163717 A1. Lee fails to cure the deficiencies of Voie and Horikawa with respect to claim 25, from which claims 30 and 31 depend, and thus Applicants request that the rejection of claims 30 and 31 be withdrawn.

Claims 35-37 were rejected under 35 U.S.C. §103(a) as being unpatentable over Voie in view of Stelzer, DE4326473. Stelzer fails to cure the deficiencies of Voie with respect to claim 25, from which claims 35-37 depend, and thus Applicants request that the rejection of claims 35-37 be withdrawn.

Claim 38 was rejected under 35 U.S.C. §103(a) as being unpatentable over Voie in view of Palcic, U.S. 4,700,298. Palcic fails to cure the deficiencies of Voie with respect to claim 25, from which claim 38 depends, and thus Applicants request that the rejection of claim 38 be withdrawn.

Claims 1 to 3, 5, 8 to 10, 15, 34, 42, 43 and 45 were rejected under 35 U.S.C. §103(a) as being unpatentable over Voie in view of Van Eijk, US 4,746,800.

With respect to this entire rejection, Van Eijk cannot be combined with Voie because the two are in entirely different fields. Van Eijk discloses a lithographic device that is not in the field of the Applicant's endeavour. First of all, the field of optical lithography is considerably different than the field of microscopy. While microscopy is intended to produce an (magnified) image of an object that is to be analysed, optical lithography is intended to optically reproduce

the shape of openings in a mask on a substrate exposed to light. Thereby, the mask is optically projected on to the substrate. Although both techniques rely on optics, they are considerably different in the application of optics.

Further, van Eijk cannot be combined with Voie. Voie and van Eijk have opposing requirements for the direction of detected light. Optical microscopy, in the field of the present invention, uses an illumination beam path that is perpendicular to the detection beam path. This is a specific type of microscope that is considerably different than the optics used in photolithography. An optical lithographic device works with light transmission, which says that a part of the incident light is transmitted through a mask and projected onto the subject. Therefore the incident light and the projection light are both in the same direction, as shown as z-direction in Fig. 5 of van Eijk.

A further reason that van Eijk cannot be used in combination with Voie is that a microscope usually focuses the incident light beam on the object to be illuminated as recited in claim 1 of the present invention. In contrast, lithography does not focus the light onto the mask but expands the light beam to achieve a complete illumination of the mask rather than just a specific portion of the object. Therefore, the optics used in optical lithography are considerably different to the optics used in microscopy as claimed in the present invention. Therefore, van Eijk is not in the field of the Applicant's endeavour that relates to imaging and microscopy of small objects, and thus one of ordinary skill in either art would not know whether to use optics for microscopy, or optics for lithography.

Applicants submit that this rejection is improper, and requests that this rejection be withdrawn.

With respect to claim 1, from which claims 2 – 15, 42, 43 and 45 depend, claim 1 recites that “the mobile arrangement has at least one rotational axis corresponding substantially to the direction of gravity.” Applicants agree with the Examiner that Voie does not disclose or suggest a holder being configured so that the holder/mobile arrangement can be rotated around an axis corresponding essentially to the gravitational direction.

The Office Action argues that van Eijk teaches an object holder which can be rotated around an axis corresponding essentially to the gravitational direction as would be seen from Fig. 5 and claim 8 wherein the z-axis would be in the direction of gravity. As described above, Voie and van Eijk are in different fields, and cannot be combined because each field has radically different goals. Additionally, one of ordinary skill in the microscopic art faced with combining Voie and van Eijk would be motivated to have an object holder rotate in the same direction as the illumination beam path. The Office Action has not presented any motivation or suggestion to use to a vertical axis of rotation, and the disclosure of van Eijk only presents advantages in the field of lithography.

In addition, the movement of an object with respect to an illumination light beam and a detection light beam is based on different consideration, when the illumination light is focussed on the object compared to lithography where the mask is to be moved in a wide field of illumination in order to be aligned with the substrate. Therefore a person skilled in the art would not consider a document directed to lithography when searching for solutions in the field of microscopy.

A rotation about the rotational axis corresponding to the direction of gravity is not disclosed in any of the prior art documents in the field of microscopy. It is an advantage of the present invention that the object is rotated around the direction of gravity because smooth and

soft deformable objects, such as biological samples, often change their shape when rotated around an axis that is not aligned with the direction of gravitation due to gravitational forces acting in different directions when the smooth deformable object is rotated. The rotation around the gravitational axis will prevent such a deformation of the object and allow the imaging of the undeformed object from different directions with higher resolution and precision.

Applicants submit that van Eijk fails to cure the deficiencies of Voie, and requests that the rejection of claims 1 – 15, 42, 43 and 45 be withdrawn.

With respect to claim 34, claim 34 depends from claim 25. Van Eijk fails to cure the deficiencies of Voie with respect to claim 25, and thus Applicants request that the rejection of claim 34 be withdrawn.

Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over Voie in view of van Eijk and further in view of Horikawa. Horikawa fails to cure the deficiencies of Voie and van Eijk with respect to claim 1, from which claim 4 depends, and thus Applicants request that the rejection of claim 4 be withdrawn.

Claims 6 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Voie in view of van Eijk and further in view of Horikawa and in view further still of Lee. Lee fails to cure the deficiencies of Voie, van Eijk and Horikawa with respect to claim 1, from which claims 6 and 7 depend, and thus Applicants request that the rejection of claims 6 and 7 be withdrawn.

Claims 11-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Voie in view of van Eijk and further in view of Stelzer. Stelzer fails to cure the deficiencies of Voie and van Eijk with respect to claim 1, from which claims 11-13 depend, and thus Applicants request that the rejection of claims 11-13 be withdrawn.

Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over Voie in view of van Eijk and further in view of Palcic. Palcic fails to cure the deficiencies of Voie and van Eijk with respect to claim 1, from which claim 14 depends, and thus Applicants request that the rejection of claim 14 be withdrawn.

Applicants have noted that a number of pieces of prior art cited solely as secondary references fail to cure deficiencies of primary references. Applicants have submitted these arguments for their expediency, and do not mean to imply that these references are otherwise appropriate. In particular, Applicants do not necessarily agree that any of these secondary references are within the field of the invention. Additionally, Applicants suggest that the use of specific elements from a large number of references implies use of impermissible hindsight.

In the event that this paper is not considered to be timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fee for such an extension together with additional fees that may be due with respect to this paper, may be charged to Counsel's Deposit Account No. 02-2135.

In light of the foregoing, Applicants submit that all outstanding rejections and objections have been overcome, and the instant application is in condition for allowance. Thus, Applicants respectfully request early allowance of the instant application. The Commissioner is hereby authorized to charge any fees or credit any overpayment to Deposit Account No. 02-2135.

Respectfully submitted,

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